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Particle-In-Cell modeling of Fast Ignition experiments on the Titan Laser[1] ANTHONY LINK, LLNL, K.U. AKLI, OSU, F. BEG, UCSD, C.D. CHEN, LLNL, J.R. DAVIES, LLE, R.R. FREEMAN, G.E. KEMP, OSU, K. LI, Instituto Superior Technico, H.S. MCLEAN, LLNL, A. MORACE, UCSD, P.K. PATEL, LLNL, D.W. SCHUMACHER, OSU, A.V. SOROKOVIKOVA, UCSD, R. STEPHENS, GA, M.J.V STREETER, Imperial College London, D. WERTEPNY, OSU, B. WESTHOVER, UCSD — We report on particle-in-cell-modeling (PIC) of fast ignition experiments conducted on the Titan laser. The Titan laser was used to irradiate multilayer planar targets at intensities greater than 10^{20} Wcm^{-2} to diagnose the laser to electron coupling, electron beam divergence, and energy spectrum of the hot electrons at relativistic intensities. Hot electron beam properties were inferred through buried fluors, escaping electrons and bremsstrahlung measurements. The PIC simulations of the experiment were conducted in two stages: a high resolution laser plasma interaction (LPI) simulation using measured on shot laser parameters but with a subscale target; and a lower resolution transport simulation containing the full scale multilayer target. The transport simulation utilized the electron source based on the output of the LPI simulation and included necessary models to simulate the experimental diagnostics. Comparison of the predicted electron source properties and the experimental data will be presented.

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